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AUTHOR Won, Karen P.; And Others
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ABSTRACT

Three elementary-age students with severe disabilities were moved from a special education class to an integrated (chronological age-appropriate regular education) classroom. The intervention resulted in substantial reductions in challenging behavior along with simultaneous increases in appropriate task-related and social behavior for all three students. Frequent incidences of aggression, tantrums, noncompliance, off-task and out-of-seat behavior were noted in the segregated environment. When in the integrated environment, students were observed to only occasionally engage in mild aggression (typically toward objects) and off-task behaviors, with no occurrence of tantrums or noncompliance. Results are discussed regarding the nature of special and regular education classrooms and the implications for effectively serving those students with disabilities that include challenging behavior. (Contains approximately 50 references.) (Author/JDD)

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The Effects of Integration on the Challenging Behavior of Students with Severe Disabilities

Karen P. Won
Island Play School, Singapore

Jacki L. Anderson
California State University, Hayward

Kathryn Haring
University of Oklahoma

Running Head: Effects of Integration on Challenging Behavior

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Abstract

The impact of integration as an ecological manipulation on challenging behavior was examined. The intervention, movement from a segregated (special education class) to an integrated (chronological age-appropriate regular education classroom), was implemented with three elementary-age students with severe disabilities following a multiple baseline design. The intervention resulted in substantial reductions in challenging behavior along with simultaneous increases in appropriate task-related and social behavior for all three students. The quantitative reduction in problem behavior was accomplished by a qualitative change in the nature of the behavior. Frequent incidences of aggression, tantrums, non-compliances, off-task and out-of-seat behavior were noted in the segregated environment. When in the integrated environment, students were observed to only occasionally engage in mild aggression (typically toward objects) and off-task behaviors, with no occurrence of tantrums or non-compliance. The results are discussed regarding the nature of special and regular education classrooms and the implications for effectively serving those students with disabilities which include challenging behavior.

The Effects of Integration on the Challenging Behavior of Students with Severe Disabilities

The provision of a least restrictive, more natural and integrated educational environment for persons with severe disabilities is more than the mere outgrowth of a social philosophy pertaining to individual civil rights. Integrated educational programs have been envisioned to function not just as an end in themselves, but rather as a condition under which students with disabilities derive significantly more benefits than are possible in segregated settings (e.g., Jenkins, Speltz, & Odom, 1985). The observed benefits of integration have made integration practices justifiable based not only upon social, legal and ethical principles, but also upon educational grounds. Integration, through the eyes of educational researchers, has proven to bear positive effects on the attitudes of nondisabled students (Bricker & Bricker, 1977; Brinker & Thorpe, 1984; Donaldson, 1980; Haring, Breen, Pitts-Conway, Lee, & Gaylord-Ross, 1987; Voeltz, 1980), skill generalization of students with severe disabilities (Gee & Goetz, 1985, 1986; Goldstein & Wickstrom, 1986; see Sailor, Goetz, Anderson, Hunt, & Gee, 1988, for review), the quantity and competence of social behaviors of persons with severe disabilities (Brinker, 1985; Borthwich, Meyers, & Eymann, 1981; Falvey, 1980; Gaylord-Ross & Pitts-Conway, 1984; Jenkins et al., 1985; Strain, Kerr, & Raglund, 1981), and the interactive behavior of both students with and without disabilities (Anderson & Goetz, 1983; Brinker & Thorpe, 1984; Haring et al., 1987; Kohler & Fowler, 1985).

Great strides have been made toward the goal of including all children with disabilities in general education settings. The display of challenging behavior such as aggression, self-injury or property destruction remains, however, as a critical barrier to successful integration (Kauffman, Lloyd, & McGee, 1989; Meyer & Evans, 1986). Substantial evidence exists regarding increases in appropriate social and

adaptive behavior as a function of education in integrated contexts (see Halvorsen & Sailor, 1990, for review). Although this research is supported by clinical reports that also indicate a simultaneous decrease in problem behavior, there is little research specifically examining the effects of integration on aberrant behavior.

In a similar trend to the influence on to changes in educational practices for students with disabilities and the contexts in which they are delivered, the dramatic changes in behavior management technology have been shaped by the commitment to the values of integration and normalization. Movement is toward a nonaversive, functional and holistic orientation which addresses such broad lifestyle changes as increased competence and participation in integrated contexts as acceptable outcomes of behavioral intervention (Horner, Albin, & O'Neill, 1990; Meyer & Evans, 1986, 1989). As the goal of behavior technology embraces widespread lifestyle outcomes, there is increased attention to comprehensive intervention packages (Carr, McConnachie, Levin, & Kemp, 1990; Horner et al., 1990) directed at broad-based ecological variables (Martens & Witt, 1988; Meyer & Evans, 1986) and setting events (Wahler & Fox, 1981). Expanded awareness of the importance of the relationship between behavior and context has led to a return to functional analysis, a detailed analysis of the variables and conditions of which the behavior is a function (Skinner, 1953, 1959; Kantor, 1989) as the basis for determining effective interventions (Carr & Durand, 1985; Donnellan, Mirenda, Mesaros, & Fassbender, 1984; Dumas, 1989; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Repp, Felce, & Barton, 1988).

A variety of ecological variables have been demonstrated to impact upon challenging behaviors. Effective manipulations of the context in which behavior occurs include physical exercises and diet (Bachman & Sluyter, 1988; Baumeister & MacLean, 1984; Kern, Koegel, Dyer, Blew, & Fenton, 1982; McGimshy & Favell, 1988; Rast, Johnston, Ellinger-Allen, & Drum, 1985), and structural modification of the

instructional context including task variations, interspersed requests, choice-making procedures, and the nature and predictability of curriculum (e.g., Datillo & Rusch, 1985; Dunlap, Kern-Dunlap, & Winterling, 1990; Horner, Day, Sprague, O'Brien, & Heatherfield, 1990; Winterling, Dunlap, & O'Neill, 1987). Research on the effects of the physical environment on the behavior of persons with severe disabilities establish this as an important variable but are limited to environmental factors in the context of an institution setting (e.g., Berkson & Mason, 1964; Favell, 1973; Horner, 1980; Hutt & Hutt, 1965). There remains a need for further investigation of environmental factors in integrated settings.

This study was designed to examine the impact of integration as an ecological manipulation on the challenging and desirable behaviors of children with severe disabilities. Three students were moved from segregated classrooms to chronological age-appropriate integrated (regular education) classrooms on the premise that positive ecological interventions do lead to significant behavior change. It was hypothesized that integration would result in a decrease in problem behaviors and simultaneous increase in appropriate behaviors.

Method

Subjects

Three male students participated in the study. They attended a class for students with severe disabilities at an elementary school. The students ranged in age from six to eight and had been identified with the disability labels of "autism," "severe emotional disturbance," " severe hyperactivity," "seizure disorders," and "specific learning disabilities." All three had a history of challenging behaviors ranging from aggressions and self-injury to distractibility and off-task behaviors. Descriptive information for each student is listed in Table 1.

Insert Table 1 about here

Settings

The three subjects attended a special day class for students with severe disabilities which was located on a regular elementary school campus. Observations were conducted in the special education classroom, as well as in a regular kindergarten, first grade and second grade classroom at the same school. The special education classroom had ten students, a teacher and an instructional aide. The regular education classrooms had an average of 32 students. During the observations for this study, there were three adults in the regular education classroom; teacher, volunteer, and special education support person (teacher or aide).

Target Behaviors

Inappropriate behaviors were identified for each subject on the basis of input from the special education teacher and extensive observation throughout the school day by the first author. Behavioral categories were identified for each student. A composite list was then targeted for evaluation which included self-injury, aggression, tantrums, disruption, inappropriate verbalization, withdrawal, non-compliance, and off-task. Appropriate behaviors included the categories of participation, initiating interaction, response to the initiations of others, compliance, turntaking, on-task, and asking for assistance. Information was also collected regarding the general context or nature of the situation in which the observations occurred. Situational categories included the occurrence of adult or

peer interactions, downtime, independent time, and group participation time. Definitions for all dependent measures are presented in Table 2.

Insert Table 2 About Here

Measurement

The two dependent variables assessed across baseline and intervention sessions were the inappropriate and appropriate behaviors of the students. Observation was conducted for each of the three students across two ecological settings (special education classroom and regular education classroom). These observations were carried out by the first author and one other independent observer. Data were collected using an observational format designed for this study. The independent observer was trained to use the rating scale to an inter-rater reliability of 90%, prior to the onset of the study.

Each observational session lasted 15 minutes, with 75 eight-second observation intervals, each followed by a four-second recording interval. Within each interval, the observer would check accordingly against the overall appropriate behavior or inappropriate behavior category, in the observation format. The observer would also identify the specific type of behavior exhibited by the student within the identified category. In addition, the observer recorded information to differentiate between initiations and responses to adults and peers with and without disabilities, and to describe the nature of downtime or participation.

Reliability. Twenty percent of the observation sessions were randomly selected for reliability checks on the dependent variables. During a reliability check the independent observer sat in the same vicinity as the senior investigator and collected data using the rating scale described above. Reliability estimates were

calculated using a "point by point agreement ratio" (Kazdin, 1982) on the specific type of inappropriate and appropriate behaviors. Percentages of behavior occurrence were determined by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The mean inter-rater reliability was 89.8% with a range from 81% to 97.3%.

Experimental Design

A multiple baseline design across subjects (Baer, Wolff, & Risley, 1968; Hersen & Barlow, 1976) was used to evaluate occurrences of appropriate and inappropriate behavior across two ecological settings. The baseline phase was followed by intervention which was implemented in a time-lagged fashion across students.

Procedures

Baseline. Baseline measures were taken in the special education classroom (segregated setting). Observations were conducted during times and activities selected to match those targeted for observation in the integrated setting. Prior to the onset of this research, activities in the special education classroom had been structured to be as similar as possible to comparable activities in regular education classrooms. For example, kindergarten-age students indicated their choice of independent or free time activities by pulling a picture of the activity from a chart. They could then change activities whenever they wanted by replacing the picture of the current activity and selecting another from those attached to the chart with clothes pins. The process and activities were the same in both the special education and kindergarten classrooms, although the activities were set up in stations throughout the kindergarten classroom and in a storage area in the special education classroom. The baseline phase for Jose consisted of five consecutive days during structured group and independent activities, ten consecutive days for

Samuel during structured group activities, and fifteen consecutive days for Albert during structured activities.

Intervention. Prior to the introduction of the intervention phase, a variety of integration best practices were carried out by the special education teacher. Such practices included: careful selection of general classes which matched the chronological age of each subject, ability awareness education activities (cf., Murray & Beckstead, 1983) in the selected general education classrooms and extensive consultation and collaboration with each general education teacher regarding the selection of times and activities and the nature and amount of support needed for the initial inclusion of each subject (cf., York & Vandercook, 1991).

The selection of times and activities for initial integration for each student was determined by extensive observation by the special education teacher of each classroom in the school serving students the same age as those targeted for this study and a structured interview with each teacher. Decisions were then made on the basis of activities which were predicted to be most successful for each student, overall daily schedules and the potential for expanding integration time immediately before and after the targeted activity, and the preference and convenience of the general education teacher. Activities were matched to the same or similar activities and materials in the special education classroom according to the categories structured, semi-structured group and independent. Structured groups included activities and routines that were predetermined, with specific required responses carefully monitored by the teacher. Semi-structured groups were organized in a less precise way and included such activities as opening time, music and small group work table tasks. Independent activities were defined as those time when students were free to select one or more activities from a finite set of options which ranged from silent reading to free play. Although materials used in the

special education classroom were also available in regular education, there was typically a much smaller selection in special education.

The intervention phase consisted of the sequential placement of each subject into general education classrooms (integrated setting). The intervention phase was introduced to Jose on the 6th day, on the 11th day for Samuel, and on the 16th day for Albert. Observations were conducted in the same manner as in the baseline phase during activities matched to those observed during baseline. During the intervention phases, Jose, Samuel and Albert were placed in a general education kindergarten, first grade and second grade classroom respectively. Semi-structured activities selected for Jose included opening, in which the activities (roll call, weather, sharing) were the same in both special and regular education contexts, getting books and listening to stories in the library with special education (baseline) or kindergarten (intervention) peers, and music were the music teacher brought the same groups of songs into both classrooms. It should be noted however, that as music activities went across ages in special education, there was a wider range of songs than in the kindergarten. Independent activities for Jose centered around free play and included the chance of make-believe play, large blocks, puzzles, small building materials in both classrooms, and the addition of sand play in the kindergarten. Independent activities selected for Samuel included silent reading or free activity time spent at the computer, doing puzzles or playing in the dress up corner. Structured group activities were more academic in nature and included social studies and science activities. Semi-structured group activities included board or computer games. With the exception of science, materials were the same in the special education and first grade classrooms but with a larger selection in the first grade. The structured group activities for Albert were academic, centered around reading and science. The same phonics program was being followed in both the special education and second grade classroom. During the intervention phase,

ongoing support was provided to each of the regular education teachers. The teacher or a paraprofessional accompanied the student to the regular classroom and worked with both the target student and the regular education students.

Results

Results for inappropriate behavior for all three students are presented in Figure 1. Movement from segregated (special day class) to integrated (general education classroom) resulted in immediate decreases in inappropriate behavior for all three students. Jose was engaging in inappropriate behaviors at a mean number of intervals of 30.6 during baseline with a range from 28 to 34. During intervention this was reduced to a mean of 5.5 intervals with a range of 1 to 9. The quantitative reduction of inappropriate behaviors (81.9%) was accompanied by a qualitative change in the nature and type of the inappropriate behaviors. In the segregated setting he engaged frequently in behaviors labeled as aggression, tantrums, non-compliance, and distractibility (off-task and out-of-seat behaviors). When placed in the integrated setting, he was seen to be engaging only occasionally in mild aggression (hitting of manipulative materials).

Insert Figure 1 about here

Baseline data indicated inappropriate behaviors occurring during an average of 29.2 intervals with a range from 24 to 32 for Samuel. This was reduced to a mean number of intervals of 13.1, with a range from 10-17 during intervention. This 55.1% numerical decrease included changes in the nature of the behavior. Self-injurious head banging behavior was completely eliminated in the integrated

setting, aggression such as hitting and pushing others changed to a pushing out of the elbows and flinging of hands which did not result in physical contact and inappropriate verbalizations went from predominantly swearing and shouting in the segregated setting to predominantly whistling in the integrated setting.

Albert was exhibiting inappropriate behavior during an average of 15.3 intervals ranging from 12-19 during baseline. The mean number of intervals with inappropriate behavior decreased to 2.6 during intervention with a range from 0 to 6. This 83% decrease represented the elimination of aggressive behaviors, non-compliance and inappropriate verbalizations. The only inappropriate behavior which occurred in the second grade classroom was occasionally being off-task.

Along with the decreases in inappropriate behavior, each of the three students experienced substantial increases in two categories of appropriate behavior. On-task behavior, which included participation in group activities and engagement in independent constructive activities, increased from a mean number of 33.8 intervals to 59.4 for Jose, 34.4 to 45.6 intervals for Samuel, and 44.7 to 65.6 for Albert. Although fairly low overall, social interactions showed an even more dramatic increase: 1.2 to 7.1 for student #1; 2.5 to 4.6 for student #2; and 2.4 to 4.4 for student #3. These data are depicted in Figures 2 and 3 respectively.

Insert Figure 2 & 3 about here

Discussion

As prevailing research has demonstrated, integration, when effectively managed, can resulted in some dramatic changes in the lives of those being integrated. This study was set up to investigate a fragment of that reality, specifically, the effect of transferring from a segregated special education classroom to an integrated general education classroom on both challenging and appropriate behaviors. Results of the study indicated that integration (including a package of best practices), in fact, did result in a substantial reduction in inappropriate and challenging behaviors, such as aggression, tantrums, self-injury, inappropriate verbalization and distractibility, and a simultaneous increase in desirable behaviors, in particular on-task and social interactive behavior, among the three subjects.

Barker (1968) observed that the nature of an environment establishes behavioral standards and expectations for the individual. Likewise, the environmental conditions of a classroom will have a meaningful impact on the learning and behaviors of the students in it. The inherent assumption in this study was that special education classrooms and general education classrooms possess incongruous environmental ecologies, and consequently send out very dissimilar environmental stimuli, demands and expectations to the students in the respective settings.

A special education classroom with its typically heterogeneous chronological-age composition of students, often possesses a limited amount of age-appropriate materials for each age category, and environmental demands and expectations for behavior may not be age-appropriate for all students. A general education classroom, on the other hand, with it homogeneous age population, typically houses a maximum of age-appropriate materials and encourages an increased amount of object-directed behavior, particularly among students of the younger age

groups. As previous research has testified, the presence of manipulative objects did result in increased object-directed behaviors and decreased stereotypic behaviors in young children with disabilities (e.g., Hutt & Hutt, 1965; Favell, 1973).

The dramatic behavior change for Jose could well be the result of an interactive effect of his age and the considerably greater number of chronological age-appropriate manipulative objects available in the integrated environment. When Jose was in the regular kindergarten, he was involved in high levels of appropriate on-task (typically including object manipulation) and social behaviors, leaving little opportunity for the display of inappropriate behavior. As Berkson & Mason (1964) had demonstrated in their work with young children with severe disabilities, problem behaviors correlate negatively with object manipulation.

A special education classroom, with its emphasis on individualized programming, may overlook the need for structured group behavior and expected student conformity to group norms and rules. The large number of general education students demonstrating compliance to these norms is also in contrast to the special education classroom environment. Although Kauffman, Lloyd, and McGee (1989) found no significant difference between special and general education teachers in their attitudes toward adaptive and maladaptive behavior among students, the general education teachers in this study appeared to have higher expectations than the special education teacher regarding appropriate behavior, in particular compliance to teacher directions. It is interesting to note that besides overall reduction in inappropriate behavior, non-compliance as a specific category was totally eliminated during integration for all three subjects.

"Individualized" instruction is often interpreted to mean one-to-one teaching rather than techniques for working toward individual objectives across a variety of grouping arrangements. Intensive one-to-one teaching can result in higher levels of adult intrusion during instruction. Recent attention to the effects of teacher

intrusion on the behavior of students with severe disabilities indicates that this may be a major issue in regards to effective instruction. High levels of adult intrusion have been shown to adversely affect the learning and behavior of students with autism (Hughes, Wolery, & Neel, 1983; Meyer, Fox, Schermer, Ketelsen, Montan, Morley, & Cole, 1987), the long term effect of social play behavior of students with severe mental retardation (Cole, Meyer, Vandercook, & McQuarter, 1986), and serve to elicit challenging behavior (Gee, Graham, & Sailor, 1992). This appeared to be supported, particularly for Jose and Samuel who exhibited substantially higher rates of tantrum, non-compliance and aggressive behavior in the special education class than in the general education class with considerably less teacher interference (or direction).

Another more obvious characteristic of a general education classroom is its social environment with the availability of general education peers for interaction and role-modeling. In the contrasting special education classroom where there is often a congregation of students with challenging behavior, much of group instructional time is spent "managing" individual displays of problem behavior resulting in waiting or down time for the other members of the group. The students in this study were found to engage in an average of 3.4 intervals of waiting time during 10-minute observations in the segregated environment and 0.7 in the integrated environment. Waiting time had been identified as a common antecedent to problem behavior for all three subjects.

It has been demonstrated that the reciprocal peer interactions available in integrated environments greatly facilitate communication, play and social skills, as well as skill acquisition among students with severe disabilities (e.g., Anderson & Goetz, 1983; Brinker & Thorpe, 1984; Haring et al., 1987; Meyer et al., 1986). The significant increase in appropriate behaviors, particularly on-task and social behaviors, observed in this study is congruent with previous research findings.

This study was designed to examine the impact of a broad ecological manipulation. Therefore, the effect of the "package" of integration best practices was examined as a whole with no intent to test specific factors within the package. The possible explanations suggested above are speculative at this point. However, although individual causal factors must, by definition, remain ambiguous, this study provides encouragement that the process of quality school integration can constitute a deliberate ecological manipulation leading to reduction in challenging behavior and simultaneous increases in constructive and prosocial behavior.

The implications of the study must be viewed with some caution, however. Although data for each subject showed immediate changes and inclined toward a distinct downward trend, more longitudinal data are needed to demonstrate maintenance or further improvement of behavior change. The small sample size limited the nature and range of functions of behavior examined. It should also be noted that the process of integration was a package of best practices including special education support in the general education context. These findings are not likely, therefore, to generalize to an unplanned "dump and hope" process of integration.

In summary, this study provided evidence the process of integration can be deliberately utilized as an effective tool for both the reduction of challenging behavior and increasing desirable behavior. Movement to integrated general education classrooms resulted in dramatic decreases in problem behavior and simultaneous increases in appropriate task-related and social behavior for all three subjects. The results were discussed in relation to a variety of characteristics of the ecologies of special and general education classrooms. Although further research is needed, particularly across ages of subjects and types and functions of behaviors, the results of this study are extremely encouraging regarding the implications for the nature of education for those students with severe challenging behavior. The history of increasingly greater levels of segregation and restriction resulting from

problem behavior can be greatly changed if, in fact, deliberate application of the process of integration itself is used as a major, active and effective component of successful positive behavioral support and education for students whose disabilities include the exhibition of challenging behavior.

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Table 1: Student Characteristics

Student	Sex	Chronological Age – Year:Month	Diagnoses	Types of Inappropriate Behaviors*	Communicative Intents
Jose	Male	6:0	Severe Hyperactivity, Developmental Delay, Seizure Disorder	Aggression, Tantrums, Non-compliance, Off-task	Demand-escape, Protest
Samuel	Male	7:4	Autism	Aggression, Self-injury, Inappropriate verbalizations, Off-task	Demand-escape, Protest
Albert	Male	7:6	Severe Emotional Disturbance, Hyperactivity, Learning Disabilities	Aggression, Inappropriate verbalizations, Non-compliance, Off-task	Demand-escape, Protest

*Based on functional assessment of inappropriate behaviors.

Table 2: Definitions of Dependent Variables

Behavior

Appropriate

Interaction:
- Initiation – comment or gesture directed toward peer or teacher
- Response – responding to initiation of interaction by others via gesture, verbalization, or facial expression

On Task – Engaged appropriately in assigned activity:
- Participation – joining in group activity via actions or verbalizations
- Independent constructive activity – engaged in age-appropriate play during leisure time without assistance

Turntaking: sitting and waiting quietly while teacher attends to others

Asking Appropriately for Adult Assistance: raising hand and/or saying teacher's name or the word help

Inappropriate

Self-Injury: biting, pinching or scratching self

Aggression: destroying materials, snatching or overturning tables/chairs, hurting others

Disruption: banging on tables/materials, interrupting others verbally or physically

Withdrawal: nonparticipation in activities, avoiding people

Non-Compliance: failure or refusal to follow teacher's direction

Off-Task: out-of-seat, not attending or not interacting with materials

Context

Peer Interaction: engaging in an interaction with peer (with or without disability), initiated by either participant or peer

Adult Interaction: receiving direct attention, supervision, and/or monitoring (instructional, behavioral, or social) from an adult

Down Time – one or more of the following:
- not engaged in any activity
- in transition between activities
- in small group but not attending directly to the group activity
- waiting for activity to begin

Independent Time: independently engaged in activity or handling materials with no adult or peer intervention

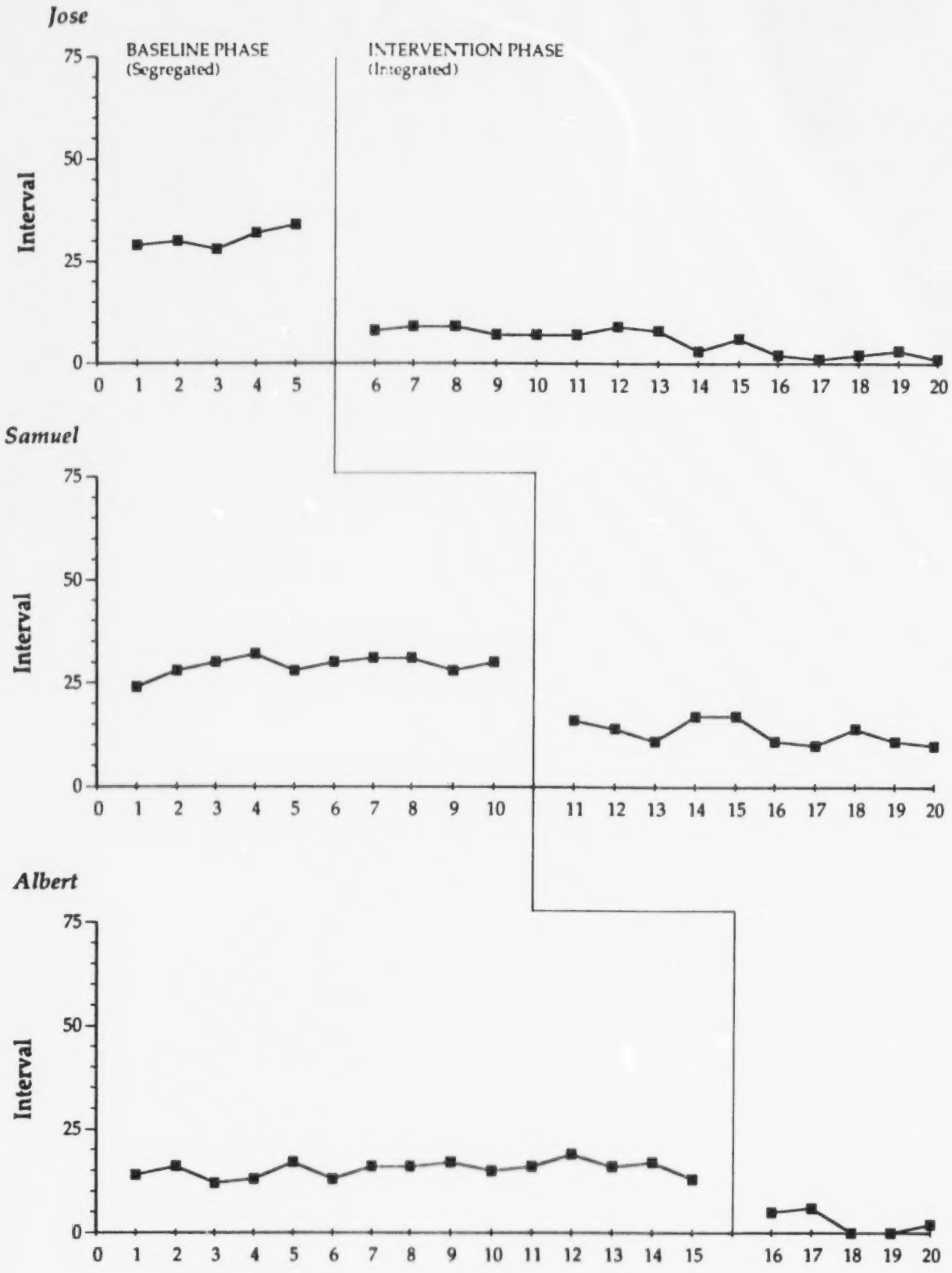
Group Participation Time: engaged in group activity with 1 teacher and 2 or more students

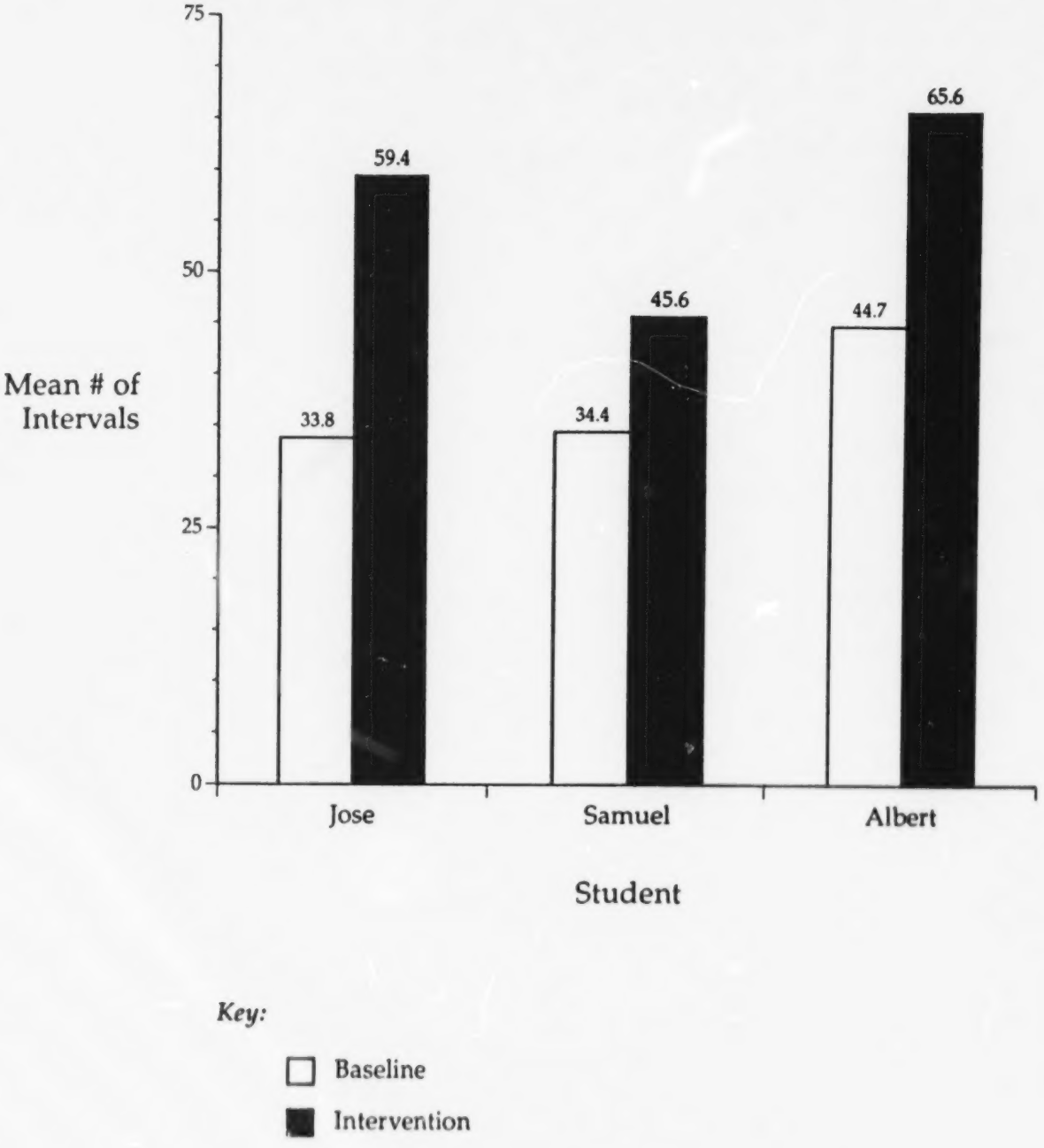
Figure Captions

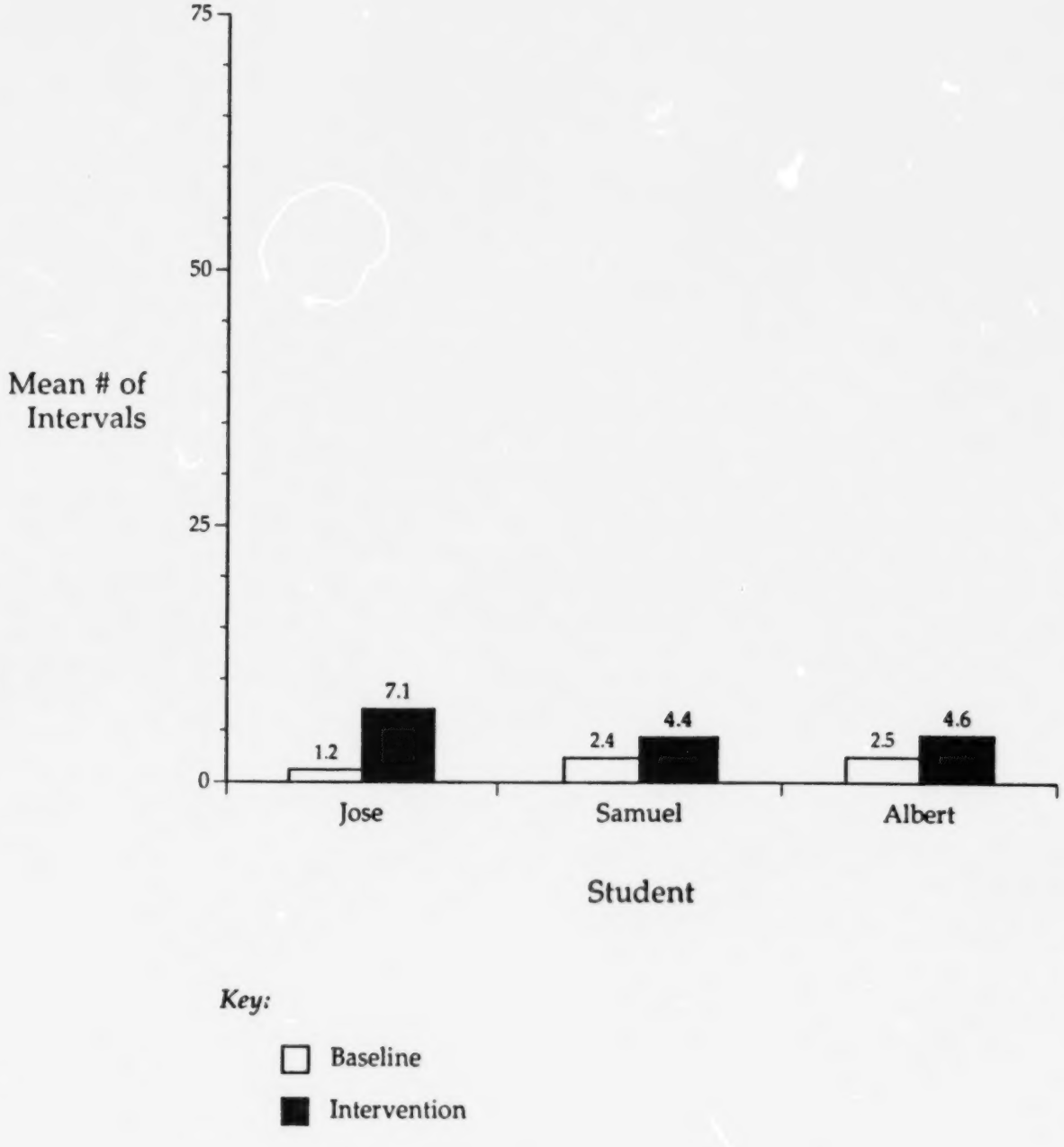
Figure 1: Number of intervals of inappropriate behaviors.

Figure 2: Change in the mean number of intervals in which on-task behavior occurred for each student.

Figure 3: Change in the mean number of intervals in which social interactive behavior occurred for each student.


Jose
BASELINE PHASE
(Segregated)
INTERVENTION PHASE
(Integrated)
Interval
75
50
25
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Samuel
Interval
75
50
25
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Albert
Interval
75
50
25
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Day


75
50
25
0
Mean # of Intervals
59.4
65.6
45.6
44.7
33.8
34.4
Jose
Samuel
Albert
Student
Key:
Baseline
Intervention


75
50
25
0
Mean # of Intervals
7.1
1.2
4.4
2.4
4.6
2.5
Jose
Samuel
Albert
Student
Key:
Baseline
Intervention